

## Lines by the Book Extension

NAME \_\_\_\_\_

1. Jimmy was working on a similar book-stacking assignment and has collected the data shown in the table below. See what information you can gather from Jimmy's table.

Number of books	0	1	2	3	4	5
Height (cm)	50.0	53.5	57.0	60.5	64.0	67.5

- a) Sketch a graph of this relationship on grid paper. Make sure to label your axes.  
 b) What is the  $y$ -intercept of this graph? \_\_\_\_\_ What does that number tell you about Jimmy's stack?

- c) What is the slope of this graph? \_\_\_\_\_ What does that number tell you about Jimmy's books?

- d) Write a formula for the height of Jimmy's stack after " $x$ " books.

2. In a different stacking activity, books were removed from a stack and the height was measured and recorded below.

Number of books removed	0	1	2	3	4	5	6
Height (cm)	200	196	192	188	184		

- a) Fill in the missing values in the table, then sketch a graph.

- b) Do the points of this graph lie on a line? \_\_\_\_\_ Does it go uphill or downhill?

- c) What is the  $y$ -intercept of this graph? \_\_\_\_\_ What does this number tell you about the initial stack?

- d) Each time you remove a book, the height decreases by \_\_\_\_\_ cm. This means the slope of this graph is \_\_\_\_\_ and that the thickness of each book is \_\_\_\_\_.

- e) Write a formula for the height of this stack after " $x$ " books have been removed.